

p53 is expressed as a central Concept connected to broader, narrower, synonymous and co-occurring Concepts as defined by the National Library of Medicine's (NLM) Medical Subject Headings® Metathesaurus and the Unified Medical Language System® (UMLS) Metathesaurus®. Developing Concepts from MeSH and UMLS knowledge relationships helps to ensure BioCAID's IMDI Profiler application "understands" the meaning of the languages of biomedicine and health.

Navigate Concept Relationships

A Concept Map is an interactive navigation tool for browsing Concept relationships. Each Concept in the map may be selected as a central Concept in a new Concept Map. A History pane to the left of the Concept Map records each successive selection of central Concepts. Concept Maps are generated independent of the navigation tool for preprocessing and the recorded path of central Concept selections may be stored for post processing.

Access Relevant Literature

MEDLINE® citations relevant to the central Concept are displayed in the right panel adjacent to the Concept Map. Each PubMed® citation is the bibliographic information for one of the over 16 million articles in the MEDLINE® database dating from 1950 to present.

The screenshot displays the BioCAID web interface. At the top, the BioCAID logo and name are visible. Below it, a search bar contains 'p53'. The main area is divided into three panels:

- History Panel (Left):** Shows a list of previously selected concepts: Protein p53, TP53 wt Allele, and Headache.
- Concept Map (Center):** A network diagram with 'Protein p53' at the center. It is connected to several other concepts:
 - Broader:** p53 gene/protein, Tumor Suppressor Proteins.
 - Narrower:** PNC-28, p53 protein (326-395), human; p53 protein (325-365), decaanglyl-p44 protein, mouse; p53 protein, human; TP53 protein, rat; p53 peptide 264-272, human; p53 protein, Drosophila; CEP-1 protein, C elegans; TP53 protein, human.
 - Synonyms:** p53 gene/protein.
 - Chemical/Other:** 2-Aminopurine, 4-Hydroxyaminoquinoline-1-oxide, 4-Butyrolactone, Heterocyclic Compounds, 4-Aminobenzole Acid, Organic Chemicals, 2-Acetylaminofluorene, 1-Naphthylamines, Polycyclic Compounds.
- Citations Panel (Right):** A list of PubMed citations related to p53, including titles, journal names, and PMIDs. Citations include:
 - 1: Lane D. The p53 pathway. *Genome Inform.* 2007;19:194. PMID: 18546517 [PubMed - in process]
 - 2: Kuznetsov VA, Orlov YL, Wei CL, Ruan Y. Computational analysis and modeling of genome-sc. *Genome Inform.* 2007;19:83-94. PMID: 18546507 [PubMed - in process]
 - 3: Naseem R, Webb M. Analysis of the DNA Binding Activity of BRCA1 and II. *PLoS ONE.* 2008 Jun 11;3(6):e2336. PMID: 18545657 [PubMed - in process]
 - 4: Bertheau P, EspjÃ© M, Turpin E, Lehmann J, Plassa TP53 status and response to chemotherapy in breast Pathobiology. 2008;75(2):132-9. Epub 2008 Jun 10. PMID: 18544968 [PubMed - in process]
 - 5: Kanfi Y, Peshti V, Gozlan YM, Rathaus M, Gil R, Cohen Regulation of SIRT1 protein levels by nutrient availab. *FEBS Lett.* 2008 Jun 7. [Epub ahead of print] PMID: 18544345 [PubMed - as supplied by publishe]
 - 6: Uononen B, Duus S, Claesson MI. Identification of differentially expressed proteins in sp. *Proteome Sci.* 2008 Jun 10;6(1):18. [Epub ahead of PMID: 18544163 [PubMed - as supplied by publishe]
 - 7: Draganova-Filipova MN, Georgieva MG, Peycheva E. Effects of propolis and CAPE on proliferation and. *Cell Med (Dordr).* 2008;50(1):53-9.

Integrated NLM resources

The MeSH Metathesaurus® and UMLS Metathesaurus® are large biomedical and healthcare peer reviewed biomedical vocabulary databases built from the electronic versions over 180 "source vocabularies." These vocabularies are representative of thesauri, classifications, code sets, and lists of controlled terms used in patient care, health services billing, public health statistics, indexing and cataloging biomedical literature, and/or basic, clinical, and health services research. These resources also contain information about Concepts that co-occur in citations in the MEDLINE® (Medical Literature Analysis and Retrieval System Online) database classified by the NLM Medical Subject Headings® (MeSH) thesaurus.

References for: **Concept Map of p53 with Relevant PubMed® Citations**

http://www.nlm.nih.gov/research/umls/about_umls.html

<http://www.nlm.nih.gov/pubs/factsheets/umlsmeta.html>

http://www.nlm.nih.gov/research/umls/source_faq.html

<http://www.nlm.nih.gov/pubs/factsheets/medline.html>

<http://www.nlm.nih.gov/pubs/factsheets/mesh.html>

<http://www.nlm.nih.gov/pubs/factsheets/pubmed.html>



Find the Hidden Relationships in Biomedical Research

To walk through a demonstration video of an Alpha prototype from our prior research, go to www.biocaid.com and click DEMO. In this self-guided demo, you will be able to see how the functionality of the IMDI Profiler organizes and presents relationships between publications and terms to support the visualization, navigation and integration of Concepts and researcher interests in the MEDLINE Library.

If you have questions about system features or our company, please contact BioCAID via e-mail: info@biocaid.com